

**REMARKS**

**I. CLAIM STATUS & AMENDMENTS**

At page 2 of the Office Action, claims 44-56 are erroneously indicated as pending. Instead, claims 1-14 are pending in this application.

Claims 1, 13, and 14 have been examined on the merits and stand rejected.

Claims 2-12 are withdrawn as non-elected subject matter.

Claims 1, 13, and 14 have been amended and new claims 15-17 have been added. Claim 14 has been cancelled without prejudice or disclaimer thereto. Applicants reserve the right to file a continuation or divisional application on any canceled subject matter.

Claims 1-13 and 15-17 are now pending.

Support for the amendments to claim 1 can be found in the Specification, for example, at page 1, lines 13-15, page 3, lines 1-5, page 10, lines 34-36, and in original claim 1.

Support for the amendment to claim 13 and 14 can be found in the Specification, for example, at page 4, lines 16-20 and in original claims 13 and 14.

Support for new claim 15 can be found in the Specification, for example, at page 6, lines 8-15.

Support for new claims 16 and 17 can be found in the Specification, for example, at page 6, lines 2-5.

The title paragraph has been amended as suggested by the Examiner. Support for this amendment can be found in the Specification, for example, at page 4, lines 5-20.

Therefore, no new matter has been added by this amendment.

**II. OBJECTION TO THE SPECIFICATION**

The Title has been objected to as allegedly being non descriptive. See Office Action, page 3, item 6.

The Title paragraph has been amended as suggested by the Examiner, thereby obviating this objection.

### **III. CLAIM OBJECTION**

Claim 13 is objected to as dependent upon a non-elected claim. See Office Action, page 3, item 7.

Claim 13 has been amended to remove dependency to non-elected claim 8, thereby obviating this objection.

### **IV. REJECTION UNDER 35 U.S.C. §101**

Claim 1 is rejected under 35 U.S.C. § 101 on the basis that the claim is directed to non-statutory subject matter in that the claim allegedly reads on a product of nature. See Office Action, pages 3-4, item 8.

Claim 1 has been amended to recite “a purified protein” as suggested by the Examiner, thereby obviating this rejection.

### **V. REJECTIONS UNDER 35 U.S.C. §112, FIRST PARAGRAPH, WRITTEN AND ENABLEMENT**

Claims 1, 13 and 14 stand rejected under 35 U.S.C. § 112, first paragraph, for a lack of written description support. Consequently, these claims have also been rejected on the basis that the Specification, while enabling for the protein of SEQ ID NO: 2, and a method for production thereof, is not enabling for any and all variants thereof. See Office Action, pages 4-10, items 9 and 10.

These rejections are respectfully traversed as applied to the amended claims and to the new claims for the following reasons.

The claims have been amended to recite “modified amino acid sequence of the amino acid sequence of SEQ ID NO: 2 that has one to several modifications selected from a substitution, a

deletion, an addition and an insertion and has cyclo(D-lactyl-L-N-methylleucyl-D-3-phenyllactyl-L-N-methylleucyl-D-lactyl-L-N-methylleucyl-D-3-phenyllactyl-L-N-methylleucyl (PF1022) synthetase activity.” Accordingly, any modified protein must have the requisite PF1022 activity.

The specification discloses proteins having PF1022 activity, and exemplifies, a particular the protein of SEQ ID NO: 2. The specification at page 6, lines 8-15 also teaches that nucleotides having at least 80% homology to the nucleotide sequence of SEQ ID NO: 1 encode proteins having the requisite activity. The specification also describes routine hybridization procedures under stringent conditions for isolating a nucleotide sequence that hybridizes with the nucleotide sequence of SEQ ID NO: 1 and encodes the protein having the requisite activity. The specification further describes methods and procedures for making such proteins and for testing for the requisite PF1022 activity. See for instance, Example 2 on pages 15-17. Routine methods for making deletions, substitutions, additions, and insertions, such as site-specific mutagenesis are well known in the art.

Given that such procedures are routine in the art, the skilled artisan, upon reading the instant specification, would be able to produce PF1022 synthetase variants having one to several mutations, and subsequently test the mutants for the requisite activity without undue experimentation.

Therefore, the rejections of claims 1, 13 and 14 under 35 U.S.C. § 112, first paragraph, are untenable and should be withdrawn.

## VI. REJECTIONS UNDER 35 U.S.C. §102

Claim 1 is rejected under 35 U.S.C. §102(a), as anticipated by Weckwerth et al., A Journal of Biological Chemistry, vol. 275, No. 23, pp.17909-17915 (June 9, 2000). See Office Action, page 10.

This rejection is respectfully traversed as applied to the amended and new claims in view of the following remarks.

Attached herewith is a verified English translation of Japanese Patent Application No. 2000-104291, filed April 6, 2000, i.e., the priority document of the instant application. As can be seen, this Japanese Patent Application was filed prior to the publication date of June 9, 2000 of Weckwerth. Since the instant invention claims priority to this application and is fully supported therein, Weckwerth is no longer available as prior art against the claimed invention.

Thus, the rejection of claim 1 under 35 U.S.C. §102(a) is untenable and should be withdrawn.

**B. Leitner**

Claims 1, 13 and 14 stand rejected under 35 U.S.C. §102(b), as anticipated by Leitner et al, EP 0578616 A2. See Office Action, pages 10-11.

The present amendment is deemed to overcome this rejection.

The claims call for a purified protein comprising the amino acid sequence of SEQ ID NO: 2, and/or a modified amino acid sequence of the amino acid sequence of SEQ ID NO: 2 that has one to several modifications selected from a substitution, a deletion, an addition and an insertion and has cyclo(D-lactyl-L-N-methylleucyl-D-3-phenyllactyl-L-N-methylleucyl-D-lactyl-L-N-methylleucyl-D-3-phenyllactyl-L-N-methylleucyl (PF1022) synthetase activity. Accordingly, any protein must have the requisite claimed PF1022 synthetase activity.

Leitner neither discloses nor suggests the claimed PF1022 synthetase protein. Instead, Leitner discloses a cyclosporin synthetase, which is different from the claimed PF1022 synthetase.

Therefore, Leitner cannot be said to anticipate the claimed invention, because Leitner fails to teach each and every element of the claimed invention, namely a protein having PF1022 synthetase activity. For these reasons, the rejection of claims 1, 13, and 14 under 35 U.S.C. §102(a) is untenable and should be withdrawn.

## VII. REJECTION UNDER 35 U.S.C. §103

Claims 13 and 14 are rejected under 35 U.S.C. §103(a), as obvious over Weckwerth in view of Leitner, Matsudaira, Methods Enzymol., vol. 182, pp. 602-613, Wozney, Methods Enzymol., vol. 182, pp. 738-751, and Aoyagi et al, U.S. Patent No. 5,763,221. See Office Action, pages 11-12.

The present amendment is deemed to overcome this rejection.

This rejection is respectfully traversed as applied to the amended and new claims for the same reasons given immediately above and in view of the following remarks.

The rejection relied on Weckwerth for disclosing PF1022 synthetase. However, as discussed above, Weckwerth is no longer available as prior art against the claimed invention.

Also, as discussed above, Leitner neither discloses nor suggests the PF1022 protein synthetase. Leitner discloses a cyclosporin synthetase which is different from the claimed synthetase.

The remaining references fail remedy the deficiencies of the primary references, because they also fail to teach or suggest the PF1022 synthetase protein,

Therefore, the rejection of claims 13 and 14 under 35 U.S.C. §103(a) is untenable and should be withdrawn.

**CONCLUSION**

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is now in condition for allowance and early notice to that effect is hereby requested.

If it is determined that the application is not in condition for allowance, the Examiner is invited to telephone the undersigned attorney at the number below if he has any suggestions to expedite allowance of the present application.

Respectfully submitted,

THE COMMISSIONER IS AUTHORIZED  
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Naoki MIDOH et al.

By:

*Warren M. Cheek, Jr.*  
Warren M. Cheek, Jr.  
Registration No. 33,367  
Attorney for Applicant

WMC/JFW  
Washington, D.C. 20006-1021  
Telephone (202) 721-8200  
Facsimile (202) 721-8250  
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**ATTACHMENT TO AMENDMENT AND REPLY:**

1. English-translated copy of Japanese Patent Application No. 2000-104291, filed April 6, 2000, i.e., the priority document of the instant application.